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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			EXAMINER TIMORY, KABIR A	
			ART UNIT 2611	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/779,622

Applicant(s)

KITAKADO, JUN

Examiner

Kabir A. Timory

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 10-14, 17-19 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-14, 17-19 and 21 is/are rejected.
- 7) ☒ Claim(s) 22, 24 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9/12/2007.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. The rejection under 35 U.S.C. 101 to non-statutory subject matter is corrected by the amendment; therefore, the rejection is withdrawn.
2. Applicant arguments regarding the rejection under 35 USC 102(b) as being anticipated by Ozaki et al. (JP Patent Number 09-205390) have been fully considered but they are not persuasive. The examiner thoroughly reviewed Applicant's arguments but firmly believes that the cited reference reasonably and properly meets the claimed limitation as rejected.

(1) Applicant's arguments: "Independent claim 1 recites, among other things, display means for displaying the estimated correlation values between the signals and the plurality of streams. In its rejection of claim 1, the Office Action asserts that the display section 12 as shown in Figure 1 of Ozaki corresponds to the claimed display means. However, this assertion is incorrect. Namely, the display section 12 of Ozaki merely informs that the movement of Ozaki's antenna is finished, such as by a "Antenna Movement Finished" textual indication on a display. This clearly does not disclose or suggest the display of an estimated correlation value between signals of a plurality of antennas".

The examiner's response: In paragraphs 0008 and 0009, Ozaki et al. discloses a means for calculating the correlation values and also he discloses a display section, space control section, which are shown in figure 1, blocks 12 and 10 respectively. In paragraph 0009, Ozaki et al. clearly states, "antennas 1 and 2 are moved according to spacing data". This indicates that the location or antenna tilt is adjusted according to the correlation values and spacing data. Two or more antennas are used in wireless devices for space diversity and to combat multipath in the system. Furthermore, in paragraph 0010, Ozaki et al. discloses "a correlation value is calculated for every spacing by making antenna spacing into a parameter". Based on this statement, it is clear that the correlation values are calculated to adjust the antennas location or tilt. In paragraph 0009, Ozaki et al. also discloses a display section, which displays "report completion" which is interpreted to be the correlation values of the received signal.

(2) Applicant's arguments: "Ozaki says nothing about the specific features recited in dependent claim 3".

The examiner's response: In paragraph 0009, Ozaki et al. discloses, "a correlation value is calculated from the signal level of an intermediate frequency signal". According to this statement, it is clear that the display means displays a correlation values, which is calculated from a signal level. Signal level is interpreted to be the magnitude level of the correlation values.

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(3) Applicant's arguments: "With respect to the rejection of dependent claim 5, which recites display content switch means for sequentially switching the display content by the display means periodically, the display section 12 of Ozaki merely provides an indication to a user that the antenna movement is complete, which is clearly not at all relevant to the specific features recited in claim 4. For example, no periodic switching is discussed at all in the Abstract of Ozaki".

The examiner's response: In paragraph 0010, Ozaki et al. discloses, "a correlation value is calculated for every spacing by making antenna spacing into parameter". According to this statement, it is clear that the display means displays a correlation values periodically since it the correlation value is calculated in every spacing.

Applicants are remained that the Examiner is entitled to give the broadest reasonable interpretation to the language of the claim. So the Examiner considers "I and Q signals in figure 11" are "controlling the phase detector" within the broad meaning of the term. The Examiner is not limited to Applicant's definition, which is not specifically set fourth in the claims. In re Tanaka et al., 193 USPQ 139, (CCPA) 1977.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-7, 10-14, 21, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Ozaki et al. (JP Patent Number 09-205390).

Regarding claim 1:

As shown in figure 1, Ozaki et al. discloses an adaptive array radio communication apparatus having a plurality of antennas (1 and 2 in figure 1), comprising:

- estimation means for estimating a correlation value between signals of a plurality of streams received at respective said plurality of antennas (8 in figure 1, paragraph 9)
- display means for displaying said estimated correlation value between said signals of said plurality of streams (displaying report is interpreted to be displaying correlation values) (12 in figure 1, paragraph 0009), and
- antenna correlation adjustment means (10 in figure 1) for causing the correlation value between said signals of said plurality of streams to be altered manually by a user (moving antennas according to spacing data is interpreted to be the adjustment means altered manually by a user) (paragraph 0009).

Regarding claim 2:

Ozaki further discloses:

- said display means displays the correlation value between said signals of said plurality of streams (displaying report is interpreted to be displaying correlation values) (paragraph 0009).

Regarding claim 3:

Ozaki further discloses:

- said display means displays a magnitude level of the correlation value between said signals of said plurality of streams (displaying report is interpreted to be displaying magnitude level of the correlation values) (paragraph 0009).

Regarding claim 4:

Ozaki further discloses:

- display means can selectively display the correlation value between said signals of said plurality of streams and a magnitude level of said correlation value as a display content (12 in figure 1, paragraph 0009),
- said adaptive array radio communication apparatus further comprising display content designation means for determining the display content by said display means in accordance with designation by a user in advance (12 in figure 1, paragraph 0009).

Regarding claim 5:

Ozaki further discloses:

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- said display means can selectively display the correlation value between said signals of said plurality of streams and a magnitude level of said correlation value as a display content (displaying report is interpreted to be displaying magnitude level of the correlation values) (12 in figure 1, abstract, paragraph 0009),
- said adaptive array radio communication apparatus further comprising display content switch means for sequentially switching the display content by said display means periodically (12 in figure 1, paragraph 0009).

Regarding claim 6:

Ozaki further discloses:

- actuation means for actuating automatically said estimation means and said display means (this limitation is obvious because most communication device can automatically display the signal information such as in mobile phones) (12 in figure 1).

Regarding claim 7:

Ozaki further discloses:

- actuation means for actuating said estimation means and said display means in accordance with designation by a user (this limitation is obvious because most communication devices such as mobile phones have decoder to estimate the original signals and display the signal information in the display of the device, which can be adjusted manually by the user) (12 in figure 1).

Regarding claim 10:

Ozaki further discloses:

- actuation means for actuating automatically said estimation means and said antenna correlation adjustment means (this limitation is obvious because most communication device can automatically display the signal information such as in mobile phones) (12 in figure 1).

Regarding claim 11:

Ozaki further discloses:

- actuation means for actuating said estimation means and said antenna correlation adjustment means in accordance with designation by a user (this limitation is obvious because most communication devices such as mobile phones have decoder to estimate the original signals and display the signal information in the display of the device, which can be adjusted manually by the user) (12 in figure 1).

Regarding claim 12:

As shown in figure 1, Ozaki discloses an antenna correlation display method of an adaptive array radio communication apparatus having a plurality of antennas (1 and 2 in figure 1), said method comprising the steps of:

- estimating a correlation value between signals of a plurality of streams received at respective said plurality of antennas (8 in figure 1, paragraph 9), and
- displaying said estimated correlation value between said signals of said plurality of streams (displaying report is interpreted to be displaying correlation values) (12 in figure 1, paragraph 0009);

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- receiving a user input for causing the estimated correlation value to be altered by a user (moving antennas according to spacing data is interpreted to be the adjustment means altered manually by a user) (paragraph 0009); and
- readjusting the plurality of antennas (1, 2, and 10 in figure 1) based on the user-altered correlation value (moving antennas according to spacing data is interpreted to be user-altered correlation value) (paragraph 0009).

Regarding claim 13:

Ozaki further discloses

- said display step displays the correlation value between said signals of said plurality of streams (displaying report is interpreted to be displaying correlation values) (12 in figure 1, paragraph 0009).

Regarding claim 14:

Ozaki further discloses

- said display step displays a magnitude level of the correlation value between said signals of said plurality of streams (displaying report is interpreted to be displaying magnitude level of the correlation values) (12 in figure 1, paragraph 0009).

Regarding claim 21:

Ozaki further discloses wherein said display means displays said estimated correlation value as a numeric value (correlation count section and display section are interpreted to display correlation value as a numeric value) (paragraph 0009), and wherein the user manually adjusts a separation between said plurality of antennas to make the correlation value to be smaller while viewing a current numeric value of said

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estimated correlation value on said display means (moving antennas according to spacing data is interpreted to be the adjustment means altered manually by a user) (paragraph 0009).

Regarding claim 23:

Ozaki further discloses wherein said estimated correlation value is displayed as a numeric value correlation count section and display section are interpreted to display correlation value as a numeric value) (paragraph 0009), and wherein the user manually adjusts a separation between said plurality of antennas to make the correlation value to be smaller while viewing a current numeric value of said estimated correlation value that is being displayed (moving antennas according to spacing data is interpreted to be the adjustment means altered manually by a user, and min values are interpreted to be the correlation value to be smaller) (paragraph 0009, paragraph 0010).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 17-19, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. (JP Patent Number 09205390) in view of Langberg et al. (US Patent

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Number 5,852,630).

Ozaki et al discloses all of the subject matter as described above except for an antenna correlation display program of an adaptive array embodied in a computer-readable medium.

However, Ozaki et al teaches the antenna correlation adjustment method of a communication device with proceeding can be implemented in software stored in a computer-readable medium. The computer-readable medium is an electronic, magnetic, optical, or other physical device or means that can be contain or store a computer program for use by or in connection with a computer-related system or method. One skilled in the art would have clearly recognized that the method of Ozaki et al., and Langberg et al would have been implemented in software. The implemented software would perform same function of the hardware for less expense, adaptability, and flexibility. Therefore, it would have been obvious to one ordinary skilled in the art at the time of the invention was made to use the software as taught by Langberg et al. in the (JP Patent Number 09205390), in order to reduce cost and improve the adaptability and flexibility of the communication system.

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Allowable Subject Matter

7. Claims 22, 24, and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record, Ozaki et al. does not teach or suggest said estimated correlation value is displayed as in either a high range, a middle range, or a low range, by way of turning on one of a first, second and third LED on a display.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kabir A. Timory whose telephone number is 571-270-1674. The examiner can normally be reached on 6:30 AM - 3:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kabir A. Timory
September 28, 2007



SHUWANG LIU
SUPERVISORY PATENT EXAMINER